UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

February 4, 2003

Reply To
Attn Of: ECL-112

Commander, Ft. Lewis *(sent via e-mail and regular mail)*
Directorate of Public Works
ATTN: AFZH-DEQ MS 17 (Mr. Eric Waehling)
Building 2012, Room 323
Ft. Lewis, WA 98433-9500

Subject: Draft Final Plans, Analysis of Site-Wide Groundwater

Dear Mr. Waehling:

Please find EPA's comments enclosed[1]. As with the soils workplans, since the documents were so substantially modified from the original versions, they were re-reviewed as new reports. Again, the primary issue (as with the recent soils work plans) was the lack of evidence of incorporation of EPA comments in the revised document. Also, this report was not sent to EPA or it's contractor, Gannett Fleming before work was conducted. This is unacceptable and could result in the need for rework or additional sample collection; a poor use of taxpayer dollars.

Again, in the future, please provide all documents to myself and to:

Tom Tobin
Gannett Fleming, Inc.
1411 Fourth Avenue, #850
Seattle, WA 98101

in order to expedite our review. It would also be extremely helpful if each deliverable is accompanied by: 1) a review schedule, 2) the status of

[1]Comments are denoted as "accepted" or "not accepted" with the reasons why the Army responses to EPA's last round of comments are not acceptable, and what action should be taken by the Army to correct this. This is done to track responses to all EPA comments from the last round.

Ecology and EPA comments if previous versions were reviewed, as well as a summary of any other changes made, 3) an email with an electronic copy of the deliverable, where possible and 4) a distribution list. It would also greatly expedite EPA reviews of Army deliverables if a preceding email were to be sent to all reviewers, where short review timeframes are likely, one to two weeks beforehand to ensure that regulators have adequate notice of incoming documents that are expected to be reviewed in a matter of days. Please contact me at (206) 553-1220 or at sheldrake.sean@epa.gov with any questions or concerns.

Sincerely,

Sean Sheldrake, Project Manager

cc: Ben Forson, Ecology *Sent via email only*
Greg Johnson, Ecology "
Brian Vincent, Clark County "
Karen Kingston, RAB co-chair "

Enclosure

Enclosure

Draft 9/25/02 Project Performance Corp. Draft SOW

Section 2.1.1, Page 3, First Paragraph. The description of necessary project personnel provided in the text should include the requirement of a Washington State Licensed Geologist and Hydrogeologist to certify appropriate designs and reports in accordance with Washington Administrative Code (WAC) regulations specified in Chapter 18.220 RCW; Chapter 308-15. COMMENT ACCEPTED Although strongly recommend that a professional geologist/hydrogeologist oversee drilling and well construction activities.

WP for analysis of site wide groundwater January 2003

General

Specific

Figure 1-3, Page 5, Proposed monitoring well locations. The location proposed for drilling the groundwater monitoring locations is at the base boundary. The text should include discussion of how and why these particular sites were selected, and if any nearby well logs or land surface features were considered in choosing these sites. Also, please include the sequence in which the wells will be drilled. NOT ACCEPTED. Specific locations for these wells and the sequence for installation have not been reviewed or approved by EPA.

Section 4.0, Page 13, First Paragraph/Second Item. The workplan proposes using one of the Demo Area 3 locations as a background well location for the site boundary well pairs. The text also states that this location will be downgradient of Demo Area 3. Former activities at Demo Area 3 may have impacted the groundwater quality at this location, however, making it unacceptable as a background location. It would be preferable to locate the paired well installation upgradient of Demo Area 3 where the wells could provide shallow and deep aquifer background data for both for Demo Area 3 and the site boundary locations. ACCEPTED

Section 4.0, Page 13, Third paragraph. The text states that “A round of potentiometric readings will be made across these wells….” The groundwater elevations should be measured several times during the first year of monitoring as well as at seasonal water level highs and lows to develop a complete picture of annual variations in the groundwater flow patterns. ACCEPTED

Section 4.2, Page 15, Table 4-2. The list of Chemicals of Potential Concern should include pesticides and PCB analysis as well as those that are listed. The addition of these analytes will provide a more complete evaluation of potential contaminants being sampled at the site boundary wells. ACCEPTED

Section 4.3, Page 17, First Paragraph. This portion of the text states that after one round of sampling COPC that are not detected above screening criteria in the first round of sampling will be dropped. One sample analysis from a newly constructed monitoring well does not provide a high enough degree of assurance to begin deleting COPC from sampling and analysis programs. Several, (3 or 4 rounds) coinciding with seasonal high and low water levels over a year is generally required to begin deleting COPC from sampling and analysis programs. ACCEPTED Noted no revision of text. Please provide a revised document or addendum which incorporates response to this comment.

Section 5.2, page 20, first Paragraph. The text describes the potential for exposure via groundwater to be an incomplete pathway as onsite shallow groundwater is not currently used. Groundwater, however, is used both on and downgradient of the site as drinking water. Due to the density of several of the contaminants of concern and the ability of high capacity wells to capture even shallow plumes in unconfined aquifers, groundwater, is a potential pathway for exposure. ACCEPTED pending groundwater sampling results.

SAP Groundwater Well Installation and Groundwater Sampling. January 2003

Section 2.1, Page 1, First Paragraph. The text states that geologic samples will be "...collected on 5 ft. intervals,...". Lithologic samples should also be collected at formation breaks, at the direction of the geologist in charge of the drilling activities and continuously if drilling or sampling conditions warrant additional detail in the examination of the subsurface geologic conditions. ACCEPTED.

Section 2.1.2, Drilling Methods. If the auger rig is retained on site in order to attempt to drill the deep wells using that technique, the drilling contractor should also have an air rotary rig available to be mobilized onto site within a days notice to minimize delay to the deep well drilling program. The deeper wells may encounter boulders and/or the Troutdale formation which the hollow stem auger drilling rig will not penetrate. NOT ACCEPTED The comment was intended to initiate discussion of goals and decision logic for

the proposed drilling program and identification of potential monitoring zones and the drilling and sampling techniques required. Cascade Drilling is a highly competent contractor but the decision to drill into deeper consolidated formations such as the Troutdale, if it is encountered, is a project management decision and not a question of the contractors technical capability. The text in the revised document includes an acceptable monitoring well construction outline but does not provide for agency input or potential variations of the proposed logic between well locations.

Section 2.2.1, Page 5, The text states that centralizers will be installed above the screen on the deep wells only. Centralizers should also be added below the well screen on both the deep and the shallow well configurations. This will prevent the screen from settling to one side of the borehole providing a more uniform gravel pack thickness. The response "...taken under consideration." is not definitive. Please provide a more specific response to this comment.

Section 2.2.1, Page 6, Annular Seal. The text states that the annular seal will be of "...neat grout, bentonite cement grout or a high solids bentonite grout...". A neat grout mixture that will meet the percentage of solids required under WAC 173-160 guidelines for resource protection wells may not be liquid enough to move with a pump. The grout specification should not include neat cement as an option. This comment was accepted but not incorporated in the revised document. Please provide a document revision or addendum which includes the response to this comment.

Section 1.2.3, Well Development, Page 7, Third item. The text in this section of the SAP proposes using a centrifugal pump to perform development of the new wells. A preferred alternative would be to use a small diameter submersible pump such as the Grunfos Redi- Flow system. These pumps provide a means to pump water and fines from within the screened zone and to vary the flow rate considerably. The use of a submersible pump as opposed to the proposed method will provide superior development more efficiently (less purge water produced and drummed). Revised text ACCEPTED.

Section1.2.4.1, Page 8, First Sentence. The boring logs as well as the monitoring well design and final reporting must be performed by or under the supervision of a licensed Washington State Geologist and Hydrogeologist per Washington State regulations.
ACCEPTED

Section 2.3.1, Page 9, Fourth Paragraph. In the opinion of Gannett Fleming, the use of a vented cap on the completed well would alleviate the time requirement for atmospheric equilibration of the groundwater elevation

and the necessity of two sets of water level elevation measurements that may not provide comparable data. The response "..taken under consideration." is not definitive. Please provide an explicit response in a revised document or addendum.

Section 5.0, Well Construction Figure. The well construction figure provided in the text illustrates a below-ground-wellhead completion. Please provide an example of an above-ground -wellhead completion as this is the design configuration proposed in the text.
This comment was accepted but not incorporated into the revised document. Please provide a response in a revised document or addendum.